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A method of and apparatus for analyzing a substance takes a stream of ions in said substance and supplies the ions to a collision cell including a quadrupole rod set for guiding the ions and a buffer gas. An RF voltage is applied to the quadrupole rod set to guide ions. An additional alternating current signal is applied to the quadrupole rod set at a frequency selected to cause resonance excitation of the secular frequency of a desired ion, whereby said desired ions are excited and undergo collision with the buffer gas causing fragmentation. The alternating current signal is then modulated, whereby periods in which said alternating current signal is applied alternate with periods in which said alternating signal is not applied. The ion spectrum after fragmentation is collected to generate one set of data for one spectrum, representative of the ion spectrum when the alternating current signal is applied, and ~~a~~ another set of data for another spectrum, representative of the ion spectrum when the alternating current signal is not applied. These two spectra can then be subtracted.

In the Specification:

Please replace the paragraph on page 6, beginning at line 10, with the following rewritten paragraph:

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(2) supplying the stream of ions and a collision gas to a multipole and providing an RF signal to the multipole, whereby the multipole functions as a collision cell;

Please replace the paragraph on page 7, beginning at line 10, with the following rewritten paragraph:

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In one embodiment, the alternating current signal is at a frequency that excites the desired primary fragment ion.